

O'Rourke James Calvin
 Form 4
 July 28, 2010

FORM 4

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION
 Washington, D.C. 20549**

OMB APPROVAL

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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *
 O'Rourke James Calvin

(Last) (First) (Middle)

C/O THE MOSAIC COMPANY, 3033 CAMPUS DRIVE, SUITE E490

(Street)

PLYMOUTH, MN 55441

(City) (State) (Zip)

2. Issuer Name and Ticker or Trading Symbol
 MOSAIC CO [MOS]

3. Date of Earliest Transaction (Month/Day/Year)
 07/27/2010

4. If Amendment, Date Original Filed (Month/Day/Year)

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

___ Director ___ 10% Owner
 Officer (give title below) ___ Other (specify below)
 EVP - Operations

6. Individual or Joint/Group Filing (Check Applicable Line)
 Form filed by One Reporting Person
 ___ Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) | | |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|-----------------------------------|-----|-------|
| | | | | (A) or (D) | Code | V | Amount | (D) | Price |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

SEC 1474 (9-02)

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative | 2. Conversion | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if | 4. Transaction | 5. Number of Derivative | 6. Date Exercisable and Expiration Date | 7. Title and Amount of Underlying Securities |
|------------------------|---------------|--------------------------------------|-------------------------------|----------------|-------------------------|---|--|
|------------------------|---------------|--------------------------------------|-------------------------------|----------------|-------------------------|---|--|

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| Security (Instr. 3) | or Exercise Price of Derivative Security | any (Month/Day/Year) | Code (Instr. 8) | Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | (Month/Day/Year) | (Instr. 3 and 4) | | | | |
|-----------------------------|--|----------------------|-----------------|---|------------------|------------------|------------------|-----------------|--------------|----------------------------|
| | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | Title | Amount or Number of Shares |
| Restricted Stock Units | \$ 0 ⁽¹⁾ | | | | | | 01/08/2012 | ⁽²⁾ | Common Stock | 13,830 |
| Stock Option (Right to Buy) | \$ 52.72 | | | | | | ⁽³⁾ | 07/27/2019 | Common Stock | 12,019 |
| Restricted Stock Units | \$ 0 ⁽¹⁾ | | | | | | 07/27/2012 | ⁽²⁾ | Common Stock | 11,381 |
| Stock Option (Right to Buy) | \$ 44.93 | 07/27/2010 | A | | 20,259 | | ⁽⁴⁾ | 07/27/2020 | Common Stock | 20,259 |
| Restricted Stock Units | \$ 0 ⁽¹⁾ | 07/27/2010 | A | | 11,128 | | 07/27/2013 | ⁽²⁾ | Common Stock | 11,128 |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--|---------------|-----------|---------|------------------|
| | Director | 10% Owner | Officer | Other |
| O'Rourke James Calvin C/O THE MOSAIC COMPANY 3033 CAMPUS DRIVE, SUITE E490 PLYMOUTH, MN 55441 | | | | EVP - Operations |

Signatures

/s/ Richard L. Mack, Attorney-in-Fact for James C. O'Rourke

07/28/2010

__Signature of Reporting Person

Date

Explanation of Responses:

* If the form is filed by more than one reporting person, see Instruction 4(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) One-for-One

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- (2) Not Applicable
- (3) Grant Date 07/27/2009; option becomes exercisable in three equal installments commencing on the first anniversary of the grant date and on each anniversary thereafter.
- (4) Grant Date 07/27/2010; option becomes exercisable in three equal installments commencing on the first anniversary of the grant date and on each anniversary thereafter.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.

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